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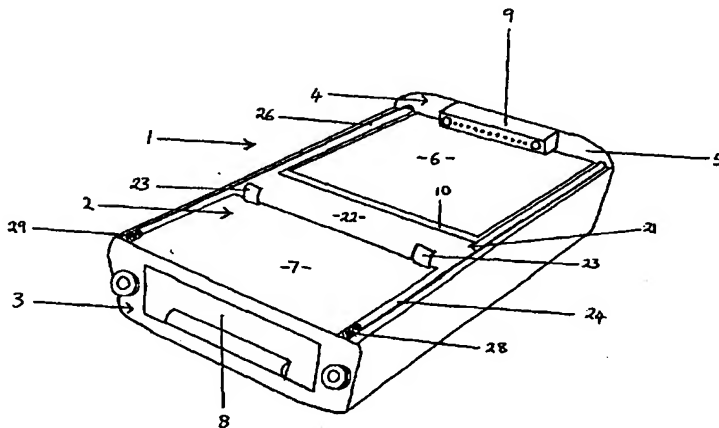
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(54) Title: **DETACHABLE PERIPHERAL APPARATUS FOR HANDHELD DEVICES**



(57) Abstract: A portable peripheral apparatus, typically a barcode scanner or a magnetic strip reader, adapted for removeable attachment to handheld computer devices, typically personal digital assistants (PDA), e.g. PALM™ or SONY CLIE™, includes in combination reading means to read coded data, typically barcodes or magnetic strips, digital processing means adapted to digitise the data read by the reading means for processing by the handheld computer device, attachment means for removeably attaching the peripheral apparatus to the handheld computer device, rechargeable power supply means to supply power to the digital processing means and the peripheral apparatus. The attachment means has first connection means adapted to electronically connect the peripheral apparatus to the handheld computer device and second connection means adapted to connect the peripheral apparatus and handheld computer device to a cradle. In use, coded data, typically barcodes or magnetic strip can be read by the peripheral apparatus and digitised and processed by the handheld computer device. The peripheral device and handheld computer device when supported by the cradle enables the downloading and uploading of information from a host computer or network in communication with the cradle and the power supply means can be recharged.



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DETACHABLE PERIPHERAL APPARATUS FOR HANDHELD DEVICES

Field of Invention

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This invention relates to portable peripheral apparatus, in particular but not limited to handheld barcode readers and/or magnetic readers releasably connected in particular to handheld computers.

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Background of Invention

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Inventory recorders such as supermarket shelf stackers and couriers have used barcode readers or magnetic readers to keep track of products, however these readers are stand-alone dedicated devices that need to be recharged separately in their own cradles and also regularly need to be connected to a host computer or network to download/upload data.

20

The development of handheld computers has advanced considerably over recent years together with the ability to use other devices such as data readers (including barcode or magnetic strip readers) in combination with handheld computers.

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30

There have been previous attempts to combine scanners with portable computers such as hand held computers. An earlier attempt involved attaching a bar code reader to a handheld computer by fixing hook and loop fasteners to the backs of the bar code reader and the handheld computer respectively. This method notwithstanding having the intention of holding the scanner and the handheld computer together is limited in that to separate the scanner from the handheld computer, the scanner has to be forcibly pulled apart from the computer, thus placing unwanted stress on the electrical connection between the

scanner and computer. Furthermore, with repeated use over time the hook and loop fasteners degrade and lose their ability to grip together effectively.

Another attempt involved the use of clip on plastic attachments that did not move. The handheld computer and reader were simply pushed in place and also pulled apart. The flexible resilience of the plastic housing was used to provide the holding force. This type of attachment was not considered suitable, as it did not suit readers with any weight. These types of attachments also became loose when force was applied or when the unit was dropped.

Previous barcode readers designed as attachments to handheld computers had to be removed in order to be synchronised with a host device. Because of this a handheld computer with a reader attachment was not considered a viable replacement for dedicated commercial units with in built barcode readers.

Even though these attempts were an improvement over the known art they had inherent problems and limitations, such as not being able to be used with the existing cradles that were originally purchased with either the reader or handheld device because the combined units were too big or too heavy to be supported by the existing cradles. A specific cradle needed therefore to be manufactured for the combined unit. Another problem is that prior art attachment mechanisms for connecting the reader to the handheld device are cumbersome and/or not robust enough to stand up to the differing types of users and the rigours placed on the combined unit by those users, especially couriers who in their haste would tend misuse and apply excessive force to the combined units. Another problem is that the reader has to be disconnected from the handheld device to enable data from the handheld device to be downloaded and/or uploaded to and from a host computer or network. A further problem is having to disconnect the reader and handheld device in order to recharge of each of their batteries. This results in a

disadvantage in having down time while either downloading/uploading data and recharging the batteries.

There is a need to be able combine a peripheral apparatus with a handheld device whereby the peripheral apparatus has an attachment mechanism, which is able to use existing cradles, wherein, both peripheral apparatus and handheld computer can be recharged and which allows for downloading and uploading of data.

Object of Invention

It is an object of the invention to provide an improved peripheral apparatus which can be connected to handheld computer, or at least provide the public with a useful choice.

Statement of the Invention

In one aspect the invention resides in a portable peripheral apparatus, typically a barcode scanner or a magnetic strip reader, adapted for removeable attachment to handheld computer devices, typically personal digital assistants (PDA), e.g. PALM™ or SONY CLIE™, including in combination

reading means to read coded data, typically barcodes or magnetic strips, digital processing means adapted to digitise the data read by the reading means for processing by the handheld computer device,

attachment means for removeably attaching the peripheral apparatus to the handheld computer device, the attachment means having

first connection means adapted to electronically connect the peripheral apparatus to the handheld computer device and

second connection means adapted to connect the peripheral apparatus and hand held computer device to a cradle,

rechargeable power supply means to supply power to the digital processing means and the peripheral apparatus,

wherein in use, coded data, typically barcodes or magnetic strip can be read by the peripheral apparatus and digitised and processed by the handheld computer

5 device,

and wherein the peripheral device and handheld computer device when supported by the cradle enables the downloading and uploading of information from a host computer or network in communication with the cradle and the power supply means can be recharged.

10

Preferably the downloading and uploading of information and the recharging function can occur simultaneously via the cradle.

Preferably the first connection means comprises a docking mechanism
15 and an electrical connection plug adapted to connect with a corresponding electrical socket connection on the handheld computer device, wherein the docking mechanism is adapted to retain the peripheral apparatus in electrical contact with the handheld computer device.

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Preferably the peripheral apparatus comprises longitudinally extending channels situated in a top surface of the peripheral apparatus wherein the channels are adaptable to accommodate part of the docking mechanism.

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Preferably the docking mechanism typically comprises an attachment plate and a u-shaped rod with a connecting portion and two legs depending therefrom wherein the attachment plate is adapted to be fixed at the ends of each of the legs of the rod and the legs are the part of the docking mechanism that reside in the channels.

30

Preferably the u-shaped rod is manufactured from suitable durable and strong material such as steel or lightweight strengthened plastics.

Preferably the attachment plate has upwardly spaced apart extending flanges adapted to assist attaching the handheld computer device to the peripheral apparatus.

5

Preferably the flanges fit into corresponding slots on the handheld computer device.

Preferably the attachment plate is welded to the legs of the u-shaped rod.

10

In the alternative, the attachment plate can be snap fitted to the legs of the u-shaped rod.

Preferably the attachment plate is centrally positioned with respect to the legs of the u-shaped rod.

15

Preferably the attachment plate is positioned toward the free end of the legs of the u-shaped rod.

20

Preferably the position of the attachment plate on the legs may be varied in order to accommodate differing types or sizes of handheld computer devices.

Preferably the spacing between the flanges can be varied in order to accommodate differing types or sizes of handheld computer devices.

25

Preferably the docking mechanism has biasing means so that the peripheral apparatus is retained firmly in electrical contact with the handheld computer device, but allows the peripheral apparatus to be disconnected from the handheld computer device by urging the docking mechanism against the bias of the biasing means.

30

Preferably the biasing means is a spring-loaded mechanism.

Preferably the spring-loaded mechanism comprise compression springs.

5 Preferably the biasing means is located in the channels in between end walls of the channels and the legs of the u-shaped rod so that the biasing means urges the docking mechanism towards the electrical connection plug of the peripheral apparatus.

10 Preferably the top surface of the peripheral apparatus has a stop member or mechanism adapted to limit the travel of the attachment plate toward the electrical connection plug.

 Preferably the peripheral apparatus is activated by a triggerless operation.

15 Preferably the reading means has a laser and movement sensors so that, in operation, movement of the peripheral apparatus will cause the laser to be activated.

20 Preferably the reading means is adapted to read barcodes.

 Preferably the reading means is adapted to read magnetic strips.

 Preferably the reading means is adapted to read both barcodes and
25 magnetic strips.

 Preferably the reading means is adapted to ready any form of printed or magnetic coded data.

30 Preferably the reading means is adapted to read fingerprints.

Preferably the digital processing means includes a circuit board processor connected to the reading means, a rechargeable power supply and a hand held computer device/cradle interface wherein the interface has a splitter adapted to allow the peripheral apparatus to simultaneously communicate with the handheld
5 computer device and the cradle.

Preferably the rechargeable power supply means are nickel cadmium batteries, however other rechargeable power supplies can also be used.

10 Preferably the cradle is adapted to be connected to a standard mains power supply and a host computer and/or network.

Preferably the handheld computer device includes wireless operation through in built transmitters and receivers to allow data to be uploaded or
15 downloaded through a wireless network, such as GSM.

Preferably the peripheral apparatus can be any one of the following:

- a) barcode scanner;
- b) magnetic strip reader;
- 20 c) smart card reader;
- d) biometric scanner;
- e) OCR reader;
- f) MICR reader; or
- g) Combination of anyone or all of the above.

25

Preferably the peripheral apparatus can include or adapted to be connected to any one of the following accessories:

- a) printer;
- 30 b) GSM phone;
- c) GPRS device;

- d) GPS;
- e) movement detector;
- f) MP3 player;
- g) MPEG player;
- 5 h) RFID device;
- i) Wireless lan;
- j) keyboard/mouse, pointer device;
- k) serial devices; or
- l) bluetooth comms device

10

In another aspect the invention resides in a method of using a portable peripheral apparatus as hereinbefore described including the steps of:

connecting the portable peripheral apparatus to a handheld computer device via the attachment means,

15

moving the combined peripheral apparatus and handheld computer device relative to items bearing the coded data to be read so as to initiate reading of the coded data,

reading the data which is downloaded to the handheld computer device,

at the completion of reading connecting the combined peripheral

20

apparatus and handheld computer device to the cradle thereby allowing the information stored in the handheld computer device to be downloaded to the host computer and recharging the batteries in the peripheral apparatus and handheld computer device.

25

Other aspects of the invention are described herein.

Brief Description of Drawings:

Embodiments of the invention will now be described by way of example

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only, with reference to the accompanying drawings of which:

Figure 1 is a perspective view of a portable peripheral apparatus in accordance to a first embodiment of the invention.

Figure 2 is a cutaway view of the portable peripheral apparatus shown in
5 Figure 1.

Figure 3 is a perspective view of a handheld computer device suitable to be connected to the portable peripheral apparatus shown in Figure 1.

10 Figure 4 is a perspective view of a portable peripheral apparatus connected to a handheld computer device in accordance to a first embodiment of the invention.

Figure 5 is a perspective view of a combined portable peripheral
15 apparatus and handheld computer device at rest in a cradle in accordance to a first embodiment of the invention.

Figure 6 is a block diagram of the digital processing means for the portable peripheral apparatus in accordance to a first embodiment of the
20 invention.

Figure 7 is a block diagram of the splitter interface of the digital processing means shown in Figure 6.

25 Figure 8 is a perspective view of a portable peripheral apparatus in accordance to a second embodiment of the invention.

30

Description of the Invention:

Referring firstly to Figures 1, 2, 3, 4 and 5 of the drawings there is shown a preferred portable scanner according to the invention.

5

The figures show a portable peripheral device 1 having an attachment means for allowing a hand held computer device (hereinafter termed "PDA") to be removable attached.

10

The portable peripheral device (hereinafter scanner 1) 1 shown is typically a barcode scanner having a top surface 2 having lower portion 7 and a raised portion 6 separated by stop portion 10 upon which the attachment means abuts in an at rest position. The scanner 1 has an end surface 3 with a scanning window 8 through which a motion activated scanning laser (not shown), can pass in use to scan items with coded data. The scanner 1 has a second end surface 4 with an upwardly extending wall 5.

15

The upwardly extending wall 5 has a multi socket connection 9 which forms part of the attachment means for cooperating with a corresponding multi pin plug 33 (Figure 3) of the PDA 30. Figure 4 shows a PDA 30 connected via the multi socket connection 9 to the scanner 1.

20

The scanner 1 has channels 11, 12 for supporting and accommodating a docking mechanism 21 of the attachment means. The channels 11, 12 extend longitudinally along the side of the scanner. The docking mechanism preferably consists of a u-shaped shaped rod having legs 24, 26 and connecting portion 25.

25

The legs 24, 26 reside in channels 11, 12 respectively and passes through the upwardly extending wall 5 so that connecting portion 25 extends outwardly and is spaced from the second end surface 4 as shown in Figure 5.

30

The docking mechanism 21 also has an attachment plate 22 fixed at each end to the legs 24, 26. The plate is preferably welded to the legs 24, 26 once the legs are positioned in the channels. The plate 22 however could be fixed by any other means such as a snap fit, being glued, by screws or the plate 22 could be
5 integrally formed with the legs 24, 26.

The plate 22 has two spaced apart upwardly extending flanges 23 which in use, correspondingly fit into slots 31, 32 of the PDA 30 so as to assist in attaching the PDA 30 to the scanner 1. It is envisaged that the plate may have
10 only one flange or more than two flanges.

It is envisaged that the position of the plate 22 on the legs 24, 26 can be varied or the distance between the two flanges varied to accommodate differing types of handheld computer devices.
15

The docking mechanism 21 is biased via springs 28, 29 so that the plate 22 is urged toward the second end surface 4 in order to maintain the PDA 30 in electrical connection with the scanner via the respective multi pin connector 33 and multi socket connector 9, respectively. The springs 28, 29 are positioned in
20 the channels 11, 12 between the end wall 3 and the feet of the legs 24, 26 so as to urge the docking mechanism 21 towards second end wall 4. A stop 10 formed between the lower portion 7 and raised portion 6 of the top surface 2 prevents the attachment plate 22 being urged too far forward. It is that other types of docking mechanisms are envisaged, e.g. such as having only one channel or three or
25 more channels.

As can be seen in Figure 2 the internal wall of the scanner 1 has fixing means 13 so that the digital processing means (not shown) can be held in place. The scanner 1 may also have on its outer surface gripping means 14 to enhance
30 handling of the scanner in use or when attaching or releasing the scanner from a PDA.

In use, the scanner 1 is attached to a PDA 30 by plugging multi pin plug 33 into multi plug socket connector 9 and aligning the flanges 23 with corresponding slots 31, 32 of the handheld computer device 30.

5

The scanner 1 and PDA 30 are held together by the action of the springs 28, 29. To release the PDA 30 from the scanner 1 the connection portion 25 of the u-shaped rod is pushed, against the bias of the springs 28, 29 toward the second end wall 4 at the same time as the PDA 30 is slid longitudinally away from end wall 4 of the scanner 1 until the multi plug pin connector 33 is unplugged.

10

If a PDA does not have slots 31, 32 to correspond with the flanges 23 of the docking mechanism 21 it is envisaged that a corresponding plate (not shown) with slots that correspond with the flanges 23 can be sold with scanner that can be releasably fitted to a PDA 30. It is envisaged that the attachment plate 22 could be positioned towards the ends of the legs 24, 26 so that the flanges can abut an end surface of the PDA 30 that is directly opposite the end surface in which the multi pin plug connector is positioned.

15

20

An electrical connector 16 (Fig. 4) of the scanner 1 can be connected to a corresponding electrical connector (not shown) of a cradle 40 so that the whole combined unit (scanner 1 and PDA 30) can be placed into a standard cradle 40.

25

The cradle 40 is adapted to be connected to a standard power supply and to a host computer or network via network cable 41 and socket 42. The placing of the combined unit in the cradle 40 allows for uploading and downloading of data to the PDA 30 and also allows the power supplies in both the scanner 1 and PDA 30 to be recharged.

30

Preferably the recharging of the power supplies can be done simultaneously as the data is being uploaded and downloaded.

It is envisaged that wireless handheld computers can be used such as a PDA with cell phone built in (eg. Handspring Treo or PalmTungsten) so that where a cradle cannot be physically connected to a host computer or network, data can be uploaded and downloaded using wireless systems, such current cell phone networks to communicate with a host computer. In such systems the data could be encrypted in order to provide security for the data being transmitted or received.

Turning now to Figures 6 and 7, there are shown block diagrams of a preferred digital processor 50 that allows data from the scanner 1 to be passed to and from the PDA and data to be passed to and from the cradle.

The scanners processor circuit board (PCB) 56 is powered by power supply 61 connected to a battery charger 60, which is in turn connected to batteries 62. The PCB 56 is connected to a scanner engine 58, eg barcode engine and connected to PDA/cradle interface 52. The PDA/cradle interface 52 is connected to the PDA and the cradle respectively. The interface 52 consists of a splitter 73 that allows data to be communicated to the desired location and also allows mains via power the cradle 54 to be delivered respective battery chargers in each of the PDA and scanner.

Data received by the scanner engine 58 is transmitted to the PCB 56 in order to be processed and then the processed data is transmitted to the PDA via the communicator interface 72 and the splitter 73. When scanning is complete the combined unit is positioned in the cradle so that data in the PDA is able to be downloaded via the splitter 73 to a host computer (via the cradle) and likewise data is able to be uploaded from the host computer to either the PDA or scanner

or both. The splitter preferably further 73 allows for the power supplies and batteries to be recharged either simultaneously or sequentially.

Turning to Figure 8 there is shown a second preferred embodiment of the invention. The same reference numbers used in the first preferred embodiment have been used for corresponding integers. In this embodiment there is shown a scanner of the magnetic swipe card type as opposed to the laser barcode scanner.

The magnetic swipe card scanner 1 has the same type of attachment means 20 as Figures 1 to 5. The magnetic swipe card scanner 1 has a slot 18 situated between wall portions 17 and 19 of the scanners first end wall 3. An internal face (not shown) of the slot has a magnetic card reader connected to the digital processor of the scanner 1 that reads the encoded data on the magnetic strip of a card in the usual manner.

The scope of the invention is sufficient to incorporate a scanner having a combined barcode reader and magnetic swipe card reader.

In a preferred form of the invention the attachment mechanism 21 of the peripheral apparatus includes the following advantages:

- (a) the scanner does not come loose with respect to the handheld device;
- (b) its easy for the user to use;
- (c) uses the minimum of space inside the scanner.
- (d) is adaptable to any type of handheld computer and any type of peripheral apparatus such as bar code readers, magnetic stripe readers and/or a combination of both.

In a further preferred form of the invention the docking mechanism 21 incorporates the following characteristics:

- (a) manufactured from steel for strength or any other suitable durable and strong material such as lightweight & strong plastics;
- (b) uses strong compression springs to keep the units attached.
5 The spring strength may be altered to make it easier or harder to use;
- (c) a full width release bar gives a large surface area for the user to push on;
- (d) the action of removal/attachment is to push the release bar
10 and then put the palm on the same, as if you were placing it in the cradle;
- (e) the docking mechanism is contained only in the extremities of the current housing of a peripheral apparatus and has only one moving part.

15

The digital processor in the peripheral apparatus allows the PDA to be synchronized through the scanner whilst attached. The charging voltage for the PDA is also "passed through" to charge the batteries in the barcode reader.

20

Where in the foregoing description reference has been made to integers or components known equivalents, then such equivalents are deemed to be incorporated herein as if individually set forth.

25

Throughout the description of this specification the word "comprise" and variations of that word such as "comprises" and "comprising", are not intended to exclude other additives, components, integers or steps.

30

It is to be understood that the scope of the invention is not limited to the described embodiments and therefore that numerous variations and modifications may be made to these embodiments without departing from the scope of the invention.

CLAIMS

- 5 1. A portable peripheral apparatus adapted for removeable attachment to handheld computer devices including in combination:
reading means to read coded data;
digital processing means adapted to digitise the data read by the reading
means for processing by the handheld computer device;
10 attachment means for removeably attaching the peripheral apparatus to the handheld computer device, the attachment means having
first connection means adapted to electronically connect the peripheral apparatus to the handheld computer device and
second connection means adapted to connect the peripheral
15 apparatus and hand held computer device to a cradle,
rechargeable power supply means to supply power to the digital processing means and the peripheral apparatus,
wherein in use, coded data can be read by the peripheral apparatus and digitised and processed by the handheld computer device,
20 and wherein the peripheral device and handheld computer device when supported by the cradle enables the downloading and uploading of information from a host computer or network in communication with the cradle and the power supply means can be recharged.
- 25 2. The portable peripheral apparatus as claimed in claim 1 wherein the downloading and uploading of information and the recharging function occurs simultaneously via the cradle.

3. The portable peripheral apparatus as claimed in any one of the preceeding claims wherein the first connection means includes a docking mechanism and an electrical connection plug adapted to connect with a corresponding electrical socket connection on the handheld computer device, wherein the docking mechanism is adapted to retain the peripheral apparatus in electrical contact with the handheld computer device.
4. The portable peripheral apparatus as claimed in claim 3 wherein the peripheral apparatus includes longitudinally extending channels situated in a top surface of the peripheral apparatus and wherein the channels are adaptable to accommodate part of the docking mechanism.
5. The portable peripheral apparatus as claimed in claim 4 wherein the docking mechanism includes an attachment plate and a u-shaped rod with a connecting portion and two legs depending therefrom, the attachment plate is adapted to be fixed at the ends of each of the legs of the rod and the legs are the part of the docking mechanism that reside in the channels.
6. The portable peripheral apparatus as claimed in claim 5 wherein the u-shaped rod is manufactured from durable and strong material.
7. The portable peripheral apparatus as claimed in claim 6 wherein the u-shaped rod is manufactured from steel.
8. The portable peripheral apparatus as claimed in claim 6 wherein the u-shaped rod is manufactured from lightweight strengthened plastics.
9. The portable peripheral apparatus as claimed in any one of claims 5 to 8 wherein the attachment plate has upwardly spaced apart extending

flanges adapted to assist attaching the handheld computer device to the peripheral apparatus.

5 10. The portable peripheral apparatus as claimed in claim 9 wherein the flanges fit into corresponding slots on the handheld computer device.

11. The portable peripheral apparatus as claimed in claim 10 wherein the attachment plate is welded to the legs of the u-shaped rod.

10 12. The portable peripheral apparatus as claimed in claim 9 wherein the attachment plate can be snap fitted to the legs of the u-shaped rod.

13. The portable peripheral apparatus as claimed in any one of claims 5 to 12 wherein the attachment plate is centrally positioned with respect to the legs of the u-shaped rod.
15

14. The portable peripheral apparatus as claimed in any one of claims 5 to 12 wherein the attachment plate is positioned toward the free end of the legs of the u-shaped rod.
20

15. The portable peripheral apparatus as claimed in any one of claims 5 to 14 wherein the position of the attachment plate on the legs maybe varied in order to accommodate differing types or sizes of handheld computer devices.
25

16. The portable peripheral apparatus as claimed in any one of claims 9 or 10 wherein the spacing between the flanges can be varied in order to accommodate differing types or sizes of handheld computer devices.
30

- 5 17. The portable peripheral apparatus as claimed in any one of claims 3 to 16 wherein the docking mechanism has biasing means so that the peripheral apparatus is retained firmly in electrical contact with the handheld computer device, but allows the peripheral apparatus to be disconnected from the handheld computer device by urging the docking mechanism against the bias of the biasing means.
- 10 18. The portable peripheral apparatus as claimed in claim 17 wherein the biasing means is a spring-loaded mechanism.
- 15 19. The portable peripheral apparatus as claimed in claim 18 wherein the spring-loaded mechanism comprise compression springs.
- 20 20. The portable peripheral apparatus as claimed in any one of claims 17 to 19 wherein the biasing means is located in the channels in between end walls of the channels and the legs of the u-shaped rod so that the biasing means urges the docking mechanism towards the electrical connection plug of the peripheral apparatus.
- 25 21. The portable peripheral apparatus as claimed in claims 3 to 16 wherein the top surface of the peripheral apparatus has a stop member or mechanism adapted to limit the travel of the attachment plate toward the electrical connection plug.
- 30 22. The portable peripheral apparatus as claimed in any one of the preceding claims wherein the peripheral apparatus is activated by a triggerless operation.

23. The portable peripheral apparatus as claimed in any one of the preceding claims wherein the reading means has a laser and movement sensors so that, in operation, movement of the peripheral apparatus will cause the laser to be activated.
24. The portable peripheral apparatus as claimed in any one of the preceding claims wherein the reading means is adapted to read barcodes, magnetic strips, fingerprints, any form of printed or magnetic coded data, or any combination thereof.
25. The portable peripheral apparatus as claimed in any one of the preceding claims wherein the digital processing means includes a circuit board processor connected to the reading means, a rechargeable power supply and a hand held computer device/cradle interface wherein the interface has a splitter adapted to allow the peripheral apparatus to simultaneously communicate with the handheld computer device and the cradle.
26. The portable peripheral apparatus as claimed in claim 25 wherein the rechargeable power supply means are nickel cadmium batteries, or other rechargeable power supplies.
27. The portable peripheral apparatus as claimed in any one of the preceding claims wherein the handheld computer device includes wireless operation mechanisms with in built transmitters and receivers to allow data to be uploaded or downloaded through a wireless network.
28. The portable peripheral apparatus as claimed in any one of the preceding claims wherein the peripheral apparatus is a barcode scanner, magnetic

strip reader, smart card reader, biometric scanner, OCR reader, MICR reader, or any combination thereof.

- 5 29. The portable peripheral apparatus as claimed in any one of the preceeding claims wherein the handheld computer devices are personal digital assistants.
- 10 30. A method of using a portable peripheral apparatus as claimed in any one of the preceeding claims wherein the method includes the steps of:
connecting the portable peripheral apparatus to a handheld computer device via the attachment means,
moving the combined peripheral apparatus and handheld computer device relative to items bearing the coded data to be read so as to initiate reading of the coded data,
15 reading the data which is downloaded to the handheld computer device,
at the completion of reading connecting the combined peripheral apparatus and handheld computer device to the cradle thereby allowing the information stored in the handheld computer device to be downloaded to the host computer and recharging the batteries in the peripheral
20 apparatus and handheld computer device.
31. A portable peripheral apparatus as substantially described herein with reference to and illustrated by the accompanying drawings.
- 25 32. A method of using a peripheral apparatus as substantially herein with reference to and illustrated by the accompanying drawings.

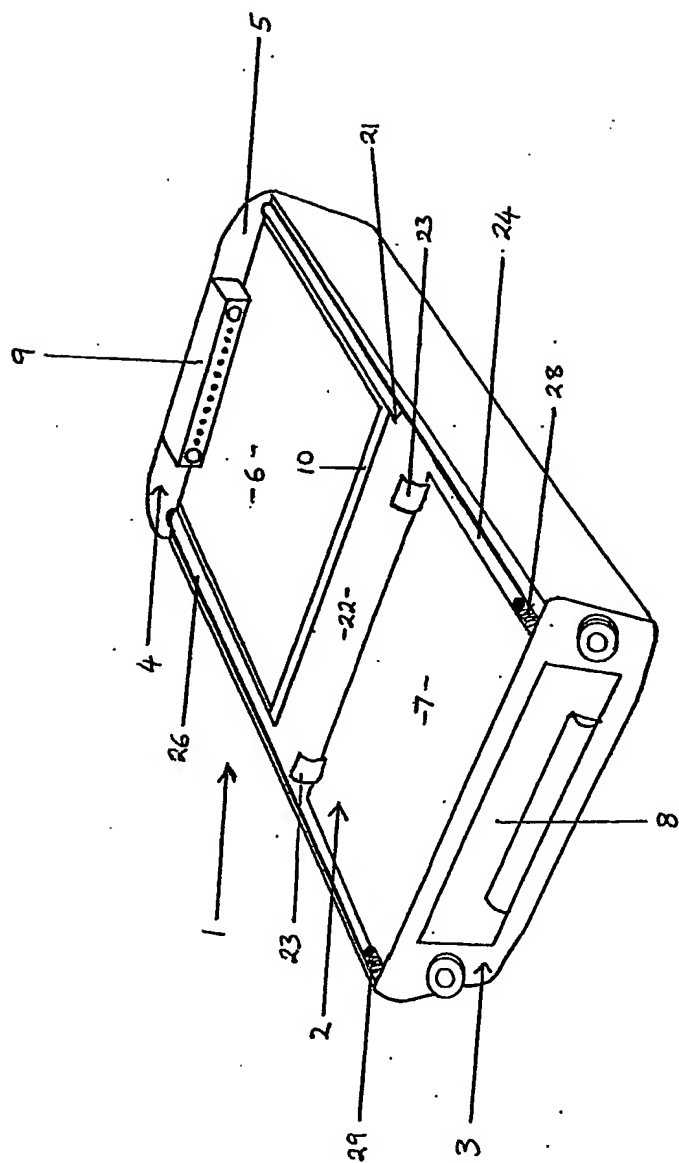


Fig 1

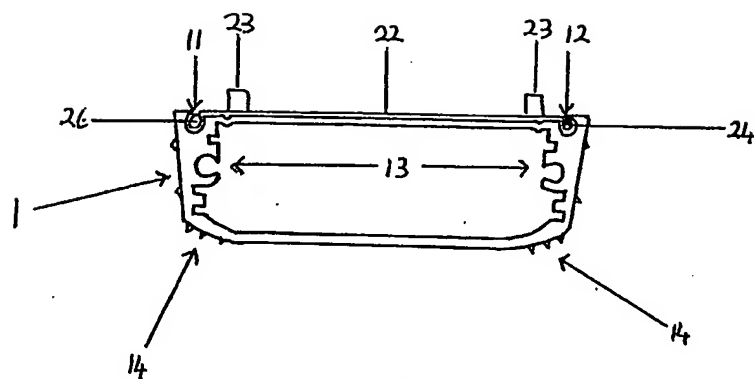


Fig 2

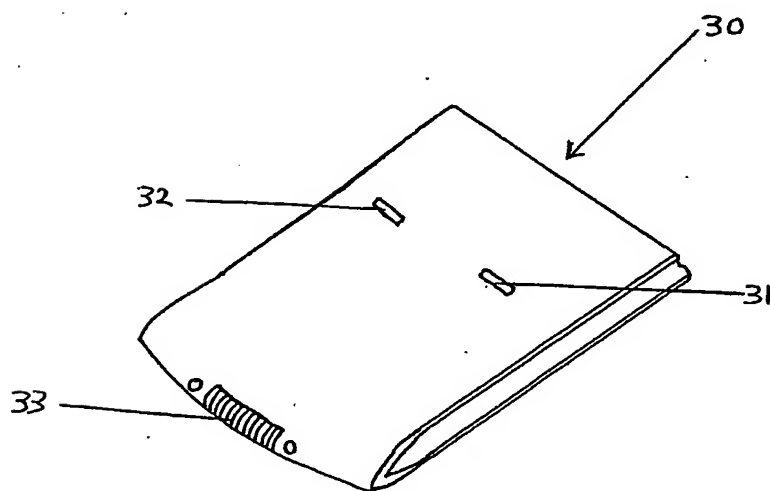


Fig 3

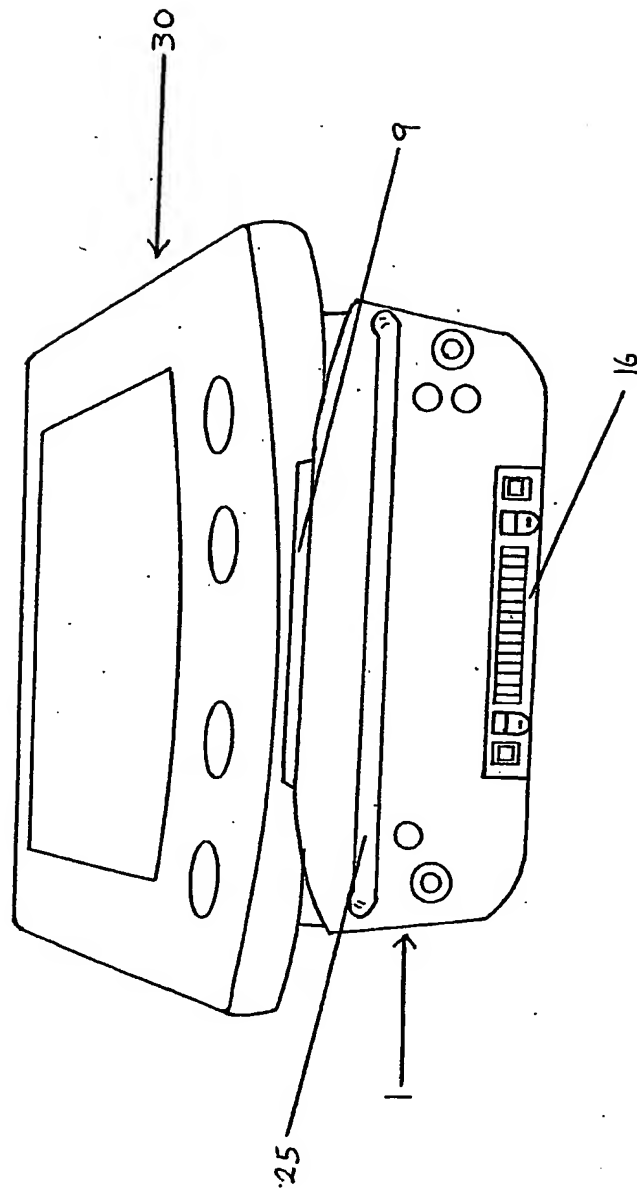


Fig 4

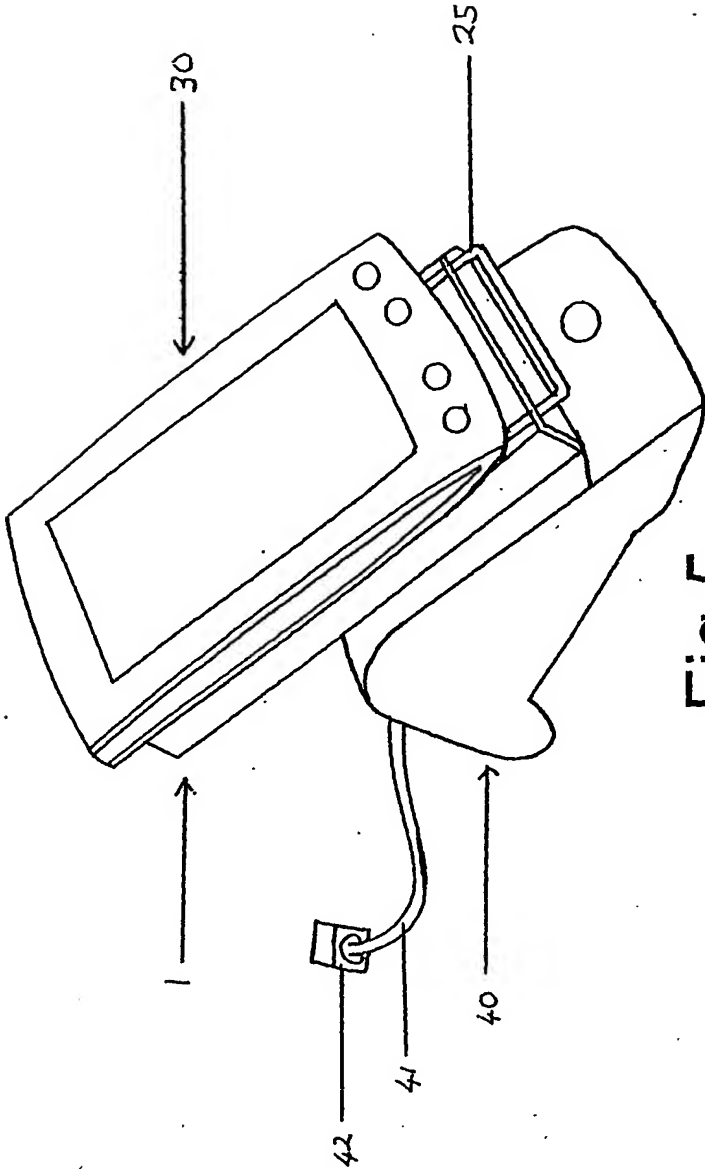


Fig 5

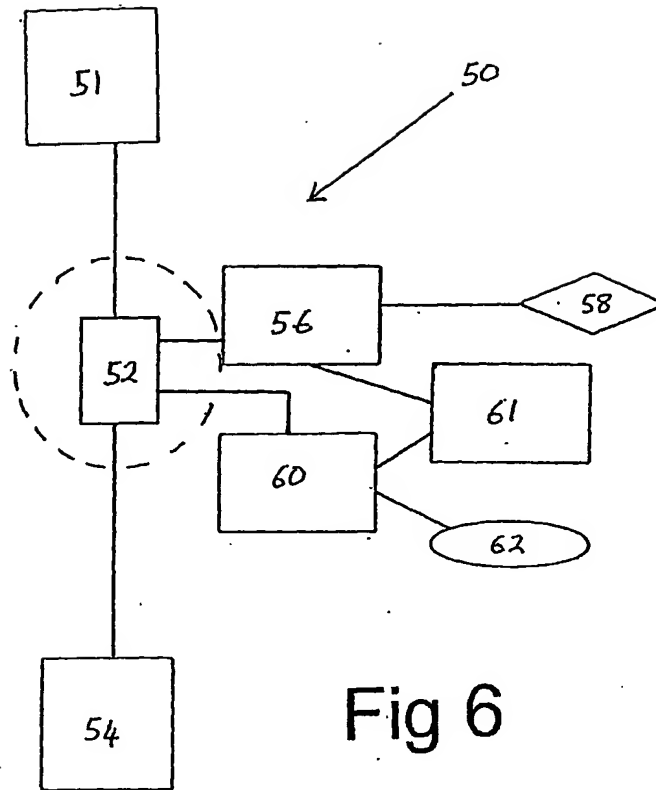


Fig 6

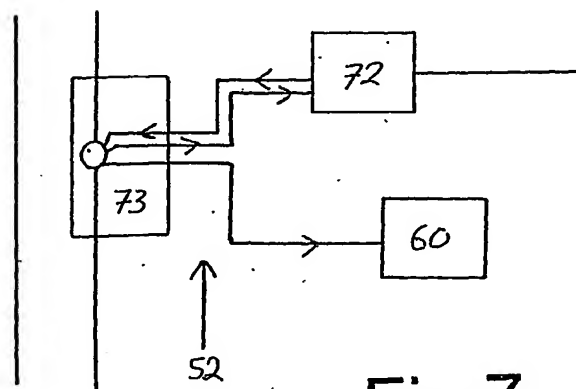


Fig 7

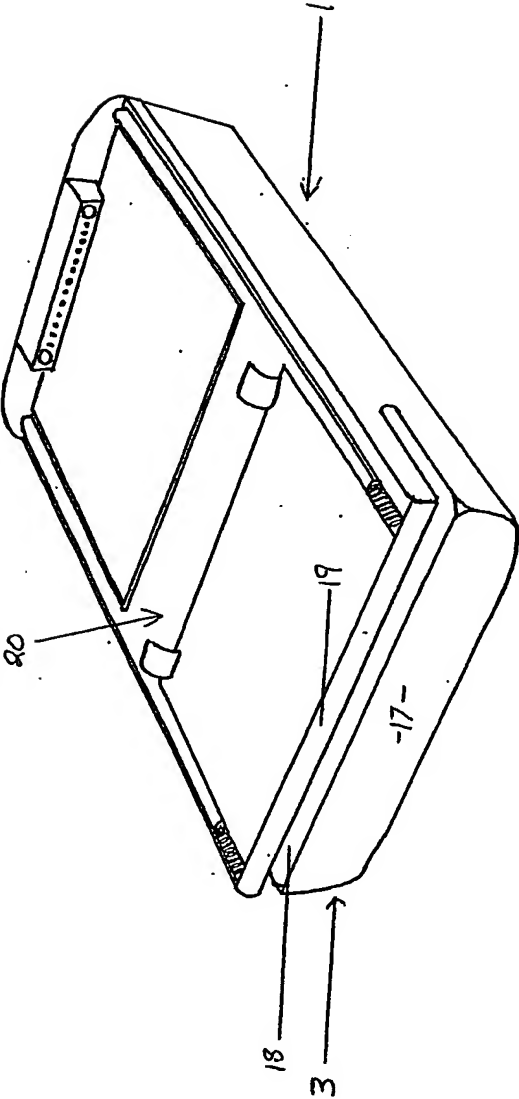


Fig 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU03/00072

A. CLASSIFICATION OF SUBJECT MATTERInt. Cl. ⁷: G06F 13/00, 1/16, G06K 7/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

USPTO, DWPI (PDA, cradle, dock, barcode, reader, scanner, adapter)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	WO 02/21247 A1 (SIMPLE DEVICES), 14 th March 2002 the whole document (in particular, paragraph 37)	1-30
A	EP 0 945 818 A2 (SYMBOL TECHNOLOGIES, INC.), 29 th September 1999 the whole document	1-30
A, P	WO 02/09023 A1 (PSC SCANNING, INC.), 31 st January 2002 the whole document	1-30

☐

Further documents are listed in the continuation of Box C

☒

See patent family annex

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>		<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search

11 March 2003

Date of mailing of the international search report

21 MAR 2003

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU03/00072

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
WO	200221247	AU	200187102	AU	200191288	US	2002065902
		US	2002065927	US	2002178279	US	2002078248
		WO	200221248	AU	200192825	WO	200230087
EP	945818	AU	21353/99	BR	9901708	JP	11328121
WO	200209023	NONE					
END OF ANNEX							